

## **THE EXPLORATION OF ARTIFICIAL INTELLIGENCE DRIVING EDUCATIONAL REFORM**

Wu Qinyu

Nanjing Normal University, Nanjing China 210023

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### **ABSTRACT**

Artificial intelligence will bring a revolutionary impact to traditional education, and we must fully grasp the opportunity of artificial intelligence to promote educational reform. The application of artificial intelligence in education will play a prominent role in five aspects: one is artificial intelligence to help solve the problem of tactical problems; the other is artificial intelligence to help students teach students in accordance with their aptitude; the third is artificial intelligence to help students develop creativity; the fourth is artificial intelligence Intelligence helps to change the role of teachers; fifth, artificial intelligence helps to break through the barriers of language education.

**Keywords :** artificial intelligence; educational reform; educational innovation;

### **Introduction**

"Artificial Intelligence" is a concept proposed in a far-reaching seminar at Dartmouth College in the United States in 1956. After more than half a century of ups and downs, it has been accompanied by a rapid increase in computing power and a rapid increase in data. The continuous optimization of Hehe algorithm ushered in a new era of development of "time, place, and harmony of people". Education is not only a century-old project, but also a worldwide problem. It is related to the rise and fall of the nation and the welfare of the people. It is a systematic project that affects the whole body. How artificial intelligence empowers education reform is an important and meaningful topic, especially for teachers and students who are on the baton of exam-taking, how to use artificial intelligence to better innovate traditional teaching and education methods, and innovate educational development Ideas and thoughts are important topics worthy of discussion.

**Artificial intelligence helps solve the tactical problems of the sea of questions**

Under the heavy pressure of test-oriented education, both schools and students are facing cruel competition. In order to improve their performance, they have to choose the "sea tactics" method to deal with possible challenges. However, this kind of "carpet bombing" method not only brings great damage to the physical and mental health of students, but also is extremely unfavorable to the cultivation and growth of innovative talents. If the problem of "sea tactics" cannot be solved, our country's education development and talent training will inevitably fall into an endless "involution" for a long time, which is extremely detrimental to the development of the country and the nation.

The reason why "Tihai Tactics" has been popular for a long time is largely because the traditional almost factory-oriented education model puts forward the same requirements on different students. In order to prevent the omission of knowledge learning, students are forced to cast nets and attack in an all-round way. . Due to the lack of pertinence, the learning effect cannot be guaranteed, and the time and energy consumed by students are too large, students and all walks of life have different cognitions and different voices about this, but they can't find a feasible solution.

The development of artificial intelligence has brought new hope to the problem-solving tactics. Artificial intelligence uses machine learning and deep neural network algorithms to turn the aimless problem-sea tactics into proactive investigations and fillings, making the learning process a reality. Easier and more solid results. At present, many artificial intelligence projects at home and abroad have made explorations in this area. For example, the Volley project developed by the American educational artificial intelligence start-up uses machine learning and natural language processing technology in artificial intelligence to support the intelligent collection of teaching texts and related videos. Make reviewing homework as easy and simple as taking a selfie. After students download the APP and activate it, as long as they take a picture of a certain question in the textbook or homework, they can immediately identify the corresponding test site, analyze the important knowledge points, and provide related teaching videos or study guides. The "learning concept map" provided by Volley can help students master the knowledge points more comprehensively. For example, before understanding the principles of photosynthesis, APP can provide students with explanations of the glycolysis process, which not only helps students sort out the knowledge points, but also allows students to do To get through. It can be seen from this that as long as the artificial intelligence technology is applied reasonably, the time-consuming and laborious questioning tactics can be turned into more accurate and efficient active learning. As long as the application is right, the long-term troubled questioning tactics may be changed, and the millennium The education problem is ushered in a solution.

### **Artificial intelligence Help to teach students in accordance with their aptitude**

"Teaching students in accordance with their aptitude" is not only the dream of human education, but also the direction that educators have pursued unremittingly for thousands of years. However, in today's educational environment, in classrooms with dozens or even hundreds of people, students can only walk in unison according to the uniform requirements of the teacher, despite the vast differences in acceptance and study habits. For example, once there was a third-year boy who had a good foundation in Chinese and English but relatively weak in mathematics, physics, and chemistry. With effective tutoring, it is completely possible to enter the ideal high school, but she has to complete one piece of Chinese and English papers almost every day according to the teacher's request. There is very little time to arrange mathematics, physics and chemistry studies. In the end, I didn't pass the entrance examination of ordinary high school, and missed the opportunity to go to the high school entrance examination. Although such examples are a small number of individual phenomena, it is precisely because of the same learning requirements and schedule that some outstanding young people have lost the opportunity for further studies. Such an outcome is embarrassing.

The emergence of artificial intelligence technology has made it possible to teach students in accordance with their aptitude that cannot be achieved under traditional conditions. Some companies focusing on the application of artificial intelligence in education have made many useful explorations. The basic idea is to collect and systematically analyze students' multi-dimensional Learning data, using artificial intelligence technology to summarize the learning methods and characteristics of students, and then automatically adjust the teaching content, methods and rhythms, so that each child can get the most suitable education for him, and achieve true teaching in accordance with their aptitude. The world's most popular foreign language learning tool- Duolingo (Chinese name is "Dolingo"). Every day tens of millions of students learn foreign languages through mobile APP or PC. The data shows that 34 hours of learning using this tool The language level achieved is equivalent to a semester of university language courses. The application of artificial intelligence technology is an important reason for the popularity of this tool developed by American companies. The developers of the system have found many valuable clues from the large number of learners' error data collected on the platform. For example, they found that many students whose mother tongue is Spanish are confused about the pronoun "it" when learning English, because "it" is difficult to translate into Spanish. Therefore, the developers adjusted the learning arrangements for such students, let them learn other pronouns first, and then began to teach "it" when the time was right, which had unexpected results.

The combination of artificial intelligence and student personal big data can design the most reasonable and optimized learning path for individuals, and the adaptation to student learning will become more and more accurate. The resulting virtuous circle and "positive incentive" will

make students If you love learning more and more, your learning efficiency will naturally become higher and higher, and the learning effect will inevitably get better and better.

### **Artificial intelligence helps the cultivation of students' creativity**

Today, when machines are becoming more and more intelligent, and artificial intelligence is approaching or even surpassing human intelligence in many aspects, education is facing more and more severe challenges. We can't help but re-examine the current way of cultivating students like factory assembly line production products. If we still adopt the same educational methods and ideas that have remained unchanged for hundreds of years, we will compete against who remembers more, who remembers well, and who quiets quickly, and ignores it. The cultivation of the most important creativity of students will surely make it difficult to return to education, and talent cultivation can only fall into a vicious circle of low-level repetition.

Under the traditional education system, the ossification of taking exams is becoming more and more fierce. There are even some high schools that are known for their high enrollment rates to accurately control student time in units of "minutes" and implement what can be called a "concentration camp" type of discipline. "Natural enemies" of students' creativity training. Undoubtedly, the cultivation of creativity is a complex systematic project. Respecting students' personalities, maximizing their strengths and avoiding weaknesses, and stimulating students' interest to the utmost is bound to be an important magic weapon for cultivating students' creativity. Einstein once said: "Everyone is a genius, but if a fish is judged by the ability to climb trees, he will believe that he is an idiot forever!" To a large extent, today's school education requires more than just letting fish climb trees. , And let the fish participate in the long-distance race. It turns countless students into "learning robots", submerged in endless mechanical learning, unable to find their own talents, nor can they cultivate them. Creativity, this is undoubtedly very dangerous.

Artificial intelligence provides the possibility for each student to better understand their own talents, stimulate their own interests, and activate their own creativity. Students can build a knowledge graph through artificial intelligence, and find the learning content that suits them more easily and more accurately. At the same time, with the help of big data analysis, not only can you really find your talents and interests, but you can also work hard in the fields you are good at and love to form your own unique creativity and competitiveness. It can be expected that with the gradual popularization of learning methods such as large-scale online open courses ( MOOC ), students have greater autonomy to choose their favorite courses, and can form innovative ideas in different subject areas, in other words, artificial Intelligence can really help

students understand the world more objectively and rationally, making their creativity a source of water, and forming a constant fire of creativity.

### **Artificial intelligence helps change the role of teachers**

For a long time, teachers have been the main body of school education. "What teachers teach, what students learn" and "How teachers teach, students will learn" are the basic consensus. In the context of the great development of artificial intelligence, the role of teachers will face a great change, mainly in the following three aspects:

#### **One is that teachers will have more time to engage in creative work.**

In the past, teachers needed to invest a lot of time and energy in homework correction, writing various comments, etc. The application of text recognition, speech recognition, semantic recognition and other technologies in artificial intelligence made large-scale automatic correction and personalized feedback possible. Teachers can be liberated from heavy and repetitive work, and can better take on the important task of "preaching the teachings and solving puzzles".

#### **The second is to shift the focus of "teaching" in the past to the focus of "education" in the future.**

"Teaching" has been a teacher's bounden duty since ancient times, but "teaching" mainly focuses on the transmission of knowledge. With the deepening of artificial intelligence applications, the responsibility of teaching will be largely performed by artificial intelligence. At present, teaching videos of various famous teachers, various unique educational platforms, and intelligent learning and evaluation systems suitable for personalized learning needs are constantly emerging, providing students with diversified learning paths, especially relative content such as mathematics. The teaching of artificial intelligence-assisted courses has become a big trend. In this context, the responsibilities of teachers will gradually change from the traditional "teaching" to the new "education" to promote the physical and mental development of students and help students grow better. It is foreseeable that the educational model of "artificial intelligence teaching and people's teacher educating" will become the basic feature of the artificial intelligence era.

#### **The third is that teachers will become the leaders of students' learning and growth.**

In the era of artificial intelligence, teachers need to design personalized solutions for students' learning and growth, and become their leaders. Artificial intelligence technology provides the possibility for teachers to cope with new challenges. The Australian-based " Smart Sparrow "

company has made explorations in this regard. The company has developed a platform that integrates curriculum design, online learning, real-time feedback, adaptive learning, big data analysis, online cooperative learning and intelligent tutoring. Teachers can use the tools and content library on the platform to design courses. Tracking the learning progress of students and discovering students' learning difficulties, so as to optimize learning content for students at any time and break various obstacles in the learning process. It will be the glorious mission of every teacher in the era of artificial intelligence to guide students' learning, provide guidance for their growth, and lead students to become outstanding talents.

### **Artificial intelligence helps break through the barriers of language education**

Language is not only the crystallization of human wisdom, but also a link that promotes exchanges and mutual learning among civilizations. According to the data provided by the "Handbook of Linguistics and Language Communication Tools" published by Germany, there are 5,651 languages that have been identified in the world. According to the classification of Esperanto, China's 55 ethnic minorities have 130 ethnic languages, which can be described as a major language country. A large number of languages with different forms provide cultural diversity and civilizational diversity, but also bring great obstacles to learning and communication. For Chinese students, whether they are in elementary school, middle school, university, or graduate level, foreign language learning occupies a lot of time and energy, and a large number of students miss all kinds of things because of poor foreign language performance. Possible opportunity.

There are four prominent problems in current foreign language education. First, there is a shortage of teachers, especially teachers of small languages, which are extremely scarce in the country and even the world, and they are largely in a state of inadequacy; The learning cycle of students is long, the progress is slow, the learning process is tortuous, and individualized and professional learning needs are difficult to meet; the third is the lack of learning and communication language experience environment, the phenomenon of "dumb foreign language" is widespread; the fourth is the speed of traditional manual translation, Efficiency, cost and other aspects cannot meet the actual needs, so it is urgent to find a way to solve the problem.

The rapid development of artificial intelligence technology has opened up unprecedented opportunities for foreign language education. The revolution of traditional foreign language education will be promoted from the following aspects: First, the use of artificial intelligence technology to realize virtual teachers of foreign language education, solve the problem of shortage of teachers, especially to make up The shortage of teachers in small languages has played an increasingly important role; the second is to provide targeted foreign language learning

solutions based on individual differences in students, to help students solve various problems and difficulties in foreign language learning, and to help students get better Fast progress and greater gains; third is to provide foreign language learning scenario simulation and role substitution, so that students can enter the state of foreign language learning immersively, through immersive learning and experience, the learning effect is greatly improved; fourth is Through machine translation and other assistance, foreign language translation is ushered in brand new opportunities. Artificial intelligence can greatly improve the efficiency and accuracy of language translation, and it can also significantly save the labor input of traditional manual translation, which greatly reduces the threshold of translation. The language barriers that have been difficult to overcome have brought revolutionary changes.

In China, artificial intelligence companies represented by iFLYTEK of the University of Science and Technology have made fruitful explorations in breaking through language barriers. The translation language provided by the "Xunfei Translator" developed by the company covers nearly 200 countries and regions around the world . Offline translation, industry AI translation, simultaneous subtitles and other functions can provide professional and efficient cross-language communication services anytime and anywhere, creating a new situation in artificial intelligence language services.

### **Concluding remarks**

The surging tide of artificial intelligence has brought unprecedented impacts and opportunities to all walks of life. As the most powerful driving force for the advancement and development of human society, education is no exception. Artificial intelligence is bound to revolutionize the relatively slow-changing education. The impact of sex. As the world's largest developing country, education is one of my country's most important people's livelihood projects. The existing problems are complex. How to use artificial intelligence development opportunities to promote comprehensive education reform and innovation is a problem worthy of in-depth discussion. Some preliminary explorations are hoped to play a role in attracting new ideas, and we look forward to more insightful people to discuss this in a more in-depth, professional and insightful manner, and jointly make greater contributions to the creation of the future of education in our country. .

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